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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/908,979	07/20/2001	Steven Donald Spence	074273-0192	6836

22428 7590 01/26/2005

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EXAMINER	
PATHAK, SUDHANSHU C	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/908,979	SPENCE ET AL.	
	Examiner	Art Unit	
	Sudhanshu C. Pathak	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *July 20th, 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *July 20th, 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-to-27 are pending in the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4 & 13 recite the limitation "said drift time" in line 3. There is insufficient antecedent basis for this limitation in the claim.

3. Claims 5 & 14 recite the limitation "said reference level" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Williams et al. (6,715,007).

Regarding to Claims 1-2, 6, 8-9, 10-11, 15, 17-20, 24 & 26-27, the Applicant Admitted Prior Art (AAPA) discloses a data source and a data sink connected using a USB, the data input is not synchronous with the USB clock (Specification, Page 1, lines 15-26 & Specification, Page 2, lines 1-6). The AAPA also discloses synchronizing the data input clock and the USB clock

and a sink device so as to avoid data loss and the quality of service in data communication applications (Specification, Page 2, lines 7-27 & Specification, Page 3, lines 1-27). However, the AAPA does not disclose receiving the data at a buffer of the sink device, determining a data level of the buffer and comparing an accumulated data level with a threshold and correcting a clock frequency for the sink device when the accumulated data level exceeds the threshold level.

Williams discloses a method of regulating a flow of data in a communication system so as to establish a data rate between the data source and the data sink (Abstract, lines 1-3 & Fig.'s 1, 3-6). Williams also discloses transmitting data by the data source into a buffer at the source data rate (Abstract, lines 3-5 & Fig. 1, elements 24, 36). Williams also discloses a data rate regulator comprising a buffer to receive the data sent by the data source at the source data rate and read from the buffer at the sink data rate (Abstract, lines 3-6 & Fig. 1, element 22). Williams also discloses the data rate regulator to be implemented into a data sink or a data source or the regulator to be implemented as an independent device (Column 3, lines 15-21, 45-63 & Fig. 1). Williams also discloses that the transmitted data from the data source are written into a buffer at the source data rate, and then read from the buffer at the sink data rate (Abstract, lines 3-6). Williams also discloses monitoring the level of data in the buffer, comparing the data level of the buffer with a threshold data level, and varying the data rate of the data source or the data sink depending on the comparison (Abstract, lines 6-12 &

Fig. 1, elements 22, 24, 28, 36 & Fig. 2 & Fig. 3, elements 102-116, 150-168 & Fig. 4-6 & Column 5, lines 59-67 & Column 6, lines 1-13, 22-67 & Claim 7). Williams also discloses correcting the clock frequency by determining the buffer fill rate and the level of drift of the accumulated data from the reference level to the threshold (Fig. 2 & Column 5, lines 48-67 & Column 6, lines 1-67 & Column 7, lines 1-50). Williams also discloses the reference level is the data level measured over a first measurement period (Fig. 2, element 64 & Column 6, lines 13-35, 44-65 & Column 7, lines 25-45). Williams also discloses the upper and lower threshold levels determine the upper and lower limit for buffer data levels that can be attained between data reference (initialization) and data termination due to overflow and underflow errors or loss of data (Column 6, lines 22-35 & Column 7, lines 5-30). Williams also discloses setting additional (intermediate) threshold levels so as to more accurately synchronize the source and sink clock (Fig. 2, elements 64-72 & Fig. 4, elements 134-140 & Column 7, lines 25-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Williams teaches implementing a data rate regulator which further teaches receiving the data at a buffer of the sink device, determining a data level of the buffer and comparing an accumulated data level with a threshold and correcting a the sink or source data rate, depending on the data fill rate and the drift from the reference levels to the threshold level, and this can be implemented in the communication system as described in the AAPA so as to synchronize the clock frequency of the sink and source devices, thus

satisfying the limitations of the claims. Furthermore, there is no criticality in selecting the threshold levels to be greater than three times a maximum data jitter and the size of the buffer to be greater than three times the threshold level is a matter of design choice depending on the maximum allowable jitter and data loss acceptable.

Regarding to Claims 3-5, 7, 12-14, 16, 21-23 & 25, the AAPA in view of Williams discloses a method of adaptive synchronization of a data sink device and a data source device coupled by a USB comprising receiving data at a buffer of the sink device, determining a data level of the buffer, comparing an accumulated data level with a threshold and correcting a clock frequency for the sink device when the accumulated data level exceeds the threshold level as described above. The AAPA further discloses inhibiting next execution of said comparing step and said correcting step for a predetermined period after said correcting step, thus comparing and correcting periodically (Specification, Page 2, lines 16-27 & Specification, Page 3, lines 1-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Williams teaches implementing a data rate regulator which further teaches receiving the data at a buffer of the sink device, determining a data level of the buffer and comparing an accumulated data level with a threshold and correcting a the sink or source data rate and this can be implemented in the communication system as described in the AAPA so as to synchronize the clock frequency of the sink and source devices, thus satisfying the limitations of the claims. Furthermore, there is no criticality in

selecting inhibiting the next execution of said comparing step and said correcting step for a predetermined period of three or five time the drift time, this is a matter of design choice and/or application choice.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.

    - If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)-272-3056
    - The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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